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MARSHALL, GERSTEIN & BORUN LLP (MICROSOFT)
233 SOUTH WACKER DRIVE
6300 SEARS TOWER
CHICAGO, IL 60606

EXAMINER

LAZARO, DAVID R

ART UNIT PAPER NUMBER

2155

DATE MAILED: 02/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/490,981	Applicant(s) RAGHURAMAN ET AL.	
	Examiner David Lazaro	Art Unit 2155	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 and 24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 and 24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is in response to the amendment filed 11/03/05.
2. Claims 3 and 10 were amended.
3. Claim 23 is canceled.
4. Claims 1-22 and 24 are pending in this office action.

Response to Amendment

5. The declaration filed on 11/03/05 under 37 CFR 1.131 is sufficient to overcome the Spasojevic reference (U.S. Patent 6,262,410). Accordingly, the rejection of claims 4-6, 10, 15, 17 and 18 under 35 U.S.C. 102(e) as being anticipated by Spasojevic, is withdrawn.
6. The objection to claim 3 is withdrawn.
7. Applicant's arguments filed 11/03/05 have been fully considered but they are not persuasive. See Response to Arguments. Accordingly, the previous grounds of rejection in relation to Agarwal and Agarwal in view of Khanna are maintained and this action is made Final.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1-6, 10-18, 21, 22 and 24 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent 5,958,010 by Agarwal et al. (Argawal).

10. With respect to Claim 1, Argawal teaches a method of tracing data traffic on a network, the method comprising: at the transport layer of a protocol stack residing on a first device in the network (Col. 9 lines 1- 25), detecting a transmission or receipt of data to or from a second device on the network (Col. 9 lines 1-25 and Col. 8 lines 3-26); and in response to the transmission or receipt being detected, recording the transmission or receipt as an entry in a trace log (Col. 5 lines 39-55 and Col. 8 lines 27-53), wherein the trace log is accessible to determine the volume of data traveling over a network (Col. 5 lines 39-55).

11. With respect to Claim 2, Argawal teaches all the limitations of Claim 1 and further teaches wherein the protocol stack is a TCP/IP stack (Col. 9 lines 1-25).

12. With respect to Claim 3, Argawal teaches all the limitations of Claim 1 and further teaches the detection step further comprises the step of detecting the presence of an

input/output packet representing the transmission or receipt (Col. 9 lines 1-25 and Col. 8 lines 27-53).

13. With respect to Claim 4, Argawal teaches a method of tracing a transmission of data over a computer network comprising: detecting a transport-layer request to transmit an input/output packet (Col. 9 lines 1-25 and Col. 8 lines 3-26); searching the input/output packet to determine an identity of a process that created the input/output packet (Col. 6 lines 10-30, Col. 7 lines 34-45, and Col. 8 lines 27-66); and storing in a trace log an entry representing the request, wherein the entry comprises the identity of the process, and wherein the trace log is accessible to determine a volume of data being transmitted over the network (Col. 5 lines 39-55, Col. 6 lines 10-30, Col. 7 lines 34-45, and Col. 8 lines 27-66).

14. With respect to Claim 5, Argawal teaches all the limitations of Claim 4 and further teaches detecting an acknowledgement of the transmission (Col. 9 lines 1-25 and Col. 8 lines 3-26); and in response to the detection of the acknowledgement, storing in the trace log an entry representing the completion of the transmission (Col. 5 lines 39-55 and Col. 8 lines 27-66).

15. With respect to Claim 6, Argawal teaches a method of tracing a receipt of data from a computer network comprising: detecting a transport-layer request to transmit a packet for an input/output connection to a port (Col. 9 lines 1-25 and Col. 8 lines 3-26: a port connection is inherent in TCP); searching the packet to determine an identity of a process that created the packet (Col. 6 lines 10-30, Col. 7 lines 34-45, and Col. 8 lines 27-66); and in response to the detection of a receipt of data at the port, storing in a trace

log an entry representing the receipt of the data, wherein the entry comprises the process identification, , and wherein the trace log is accessible to determine a volume of data being transmitted over the network (Col. 5 lines 39-55, Col. 6 lines 10-30, Col. 7 lines 34-45, and Col. 8 lines 27-66).

16. With respect to Claim 10, Argawal teaches a facility for tracing data traffic on a network at the transport layer, the facility comprising: an identifying means for identifying a process causing a transport-layer request to transmit data via the network (Col. 6 lines 10-30, Col. 7 lines 34-45, and Col. 8 lines 27-66); and a logging means in communication with the identifying means for logging an event, wherein the event comprises the identification of the process and wherein the logging means is useable to determine a volume of data traveling over the network (Col. 5 lines 39-55, Col. 6 lines 10-30, Col. 7 lines 34-45, and Col. 8 lines 27-66).

17. With respect to Claim 11, Argawal teaches all the limitations of Claim 10 and further teaches the identifying means further comprises means for communicating with a transport layer of a protocol stack (Col. 9 lines 1-25 and Col. 8 lines 3-26).

18. With respect to Claim 12, Argawal teaches a computer readable medium having stored thereon computer executable instructions for performing steps comprising: at the transport layer of a protocol stack residing on a first device in the network (Col. 9 lines 1-25), detecting a transmission or receipt of data to or from a second device on the network (Col. 9 lines 1-25 and Col. 8 lines 3-26); and in response to the transmission or receipt being detected, recording the transmission or receipt as an entry in a trace log

(Col. 5 lines 39-55 and Col. 8 lines 27-53), wherein the trace log is accessible to determine the volume of data traveling over a network (Col. 5 lines 39-55).

19. With respect to Claim 13, Argawal teaches all the limitations of Claim 12 and further teaches wherein the protocol stack is a TCP/IP stack (Col. 9 lines 1-25).

20. With respect to Claim 14, Argawal teaches all the limitations of Claim 12 and further teaches having further computer executable instructions for performing the step of detecting the presence of an input/output packet representing the transmission or receipt (Col. 9 lines 1-25 and Col. 8 lines 27-53).

21. With respect to Claim 15, Argawal teaches a computer readable medium having stored thereon computer executable instructions for performing steps comprising: detecting a transport-layer request to transmit an input/output packet (Col. 9 lines 1-25 and Col. 8 lines 3-26); searching the input/output packet to determine an identity of a process that created the input/output packet (Col. 6 lines 10-30, Col. 7 lines 34-45, and Col. 8 lines 27-66); and storing in a trace log an entry representing the request, wherein the entry comprises the identity of the process, and wherein the trace log is accessible to determine a volume of data being transmitted over the network (Col. 5 lines 39-55, Col. 6 lines 10-30, Col. 7 lines 34-45, and Col. 8 lines 27-66).

22. With respect to Claim 16, Argawal teaches all the limitations of Claim 15 and further teaches having further computer-executable instructions for performing the step of detecting the presence of the input/output packet at the transport layer of a protocol stack (Col. 9 lines 1-25 and Col. 8 lines 27-53).

23. With respect to Claim 17, Argawal teaches all the limitations of Claim 15 and further teaches having further computer-executable instructions for performing the step of detecting an acknowledgement of the transmission (Col. 9 lines 1-25 and Col. 8 lines 3-26); and in response to the detection of the acknowledgement, storing in the trace log an entry representing the completion of the transmission (Col. 5 lines 39-55 and Col. 8 lines 27-66).

24. With respect to Claim 18, Argawal teaches a computer readable medium having stored thereon computer executable instructions for performing steps comprising: detecting a transport-layer request to transmit a packet for an input/output connection to a port (Col. 9 lines 1-25 and Col. 8 lines 3-26); searching the packet to determine an identity of a process that created the packet (Col. 6 lines 10-30, Col. 7 lines 34-45, and Col. 8 lines 27-66); and in response to the detection of a receipt of data at the port, storing in a trace log an entry representing the receipt of the data, wherein the entry comprises the process identification, , and wherein the trace log is accessible to determine a volume of data being transmitted over the network (Col. 5 lines 39-55, Col. 6 lines 10-30, Col. 7 lines 34-45, and Col. 8 lines 27-66).

25. With respect to Claim 21, Argawal teaches all the limitations of Claim 18 and further teaches having further computer-executable instructions for performing the steps of: detecting the presence of an input/output request packet indicating that the data receipt is complete (Col. 9 lines 1-25 and Col. 8 lines 3-26); and in response to the detection of the completion input/output request packet, storing in the trace log an entry representing the receipt of the data (Col. 5 lines 39-55 and Col. 8 lines 27-66).

26. With respect to Claim 22, Argawal teaches all the limitations of Claim 1 and further teaches wherein the transmission of data is recorded at the completion of the transmission indicated by an acknowledgment from the first device (Col. 9 lines 1-25 and Col. 8 lines 3-26).

27. With respect to Claim 24, wherein the identity of the process includes a port number of an IP address relating to the transmission (Col. 8 lines 27-66).

Claim Rejections - 35 USC § 103

28. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

29. Claims 7-9, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Argawal in view of U.S. Patent 5,978,849 by Khanna (Khanna).

30. With respect to Claim 7, Argawal teaches creating a connection object representing the opening of the port connection by the process (Col. 9 lines 1-25 and Col. 8 lines 3-26) and in response to the detection of the receipt of data at the port, copying the process identification into the trace log (Col. 5 lines 39-55 and Col. 8 lines 27-66).

31. Argawal does not explicitly disclose copying the process identification from the connection object into a transport control block associated with the port. Khanna

teaches that it is well known in the art that a process identity related to an established connection can be copied into a transport control block (TCB) (Col. 5 lines 18-43).

32. It would have been obvious to one of ordinary skill in the art at the time the invention was made to take the method disclosed by Argawal and modify it as indicated by Kanna such that the method further comprises copying the process identification from the connection object into a transport control block associated with the port. Such a modification would allow a simple way to correlate events occurring at the TCP level in relation to stored context information (In Argawal: Col. 8 lines 27-58). One would be motivated to have this, as there is need for the correlation of events at certain transaction levels in providing an analysis of system performance (In Argawal: Col. 8 lines 54-67 and Col. 3 lines 3-9 and Col. 2 lines 46-50).

33. With respect to Claim 8, Argawal in view of Khanna teaches all the limitations of Claim 7 and further teaches copying the process identification from the connection object into the transport control block so that the process identification is contiguous with the rest of the data in the transport control block (The combination of Argawal and Khanna in the rejection of Claim 7 would provide for such a limitation).

34. With respect to Claim 9, Argawal in view of Khanna teaches all the limitations of Claim 8 and further teaches detecting the presence of an input/output request packet indicating that the data receipt is complete (In Argawal: Col. 9 lines 1-25 and Col. 8 lines 3-26); and in response to the detection of the completion input/output request packet, storing in the trace log an entry representing the receipt of the data (In Argawal: Col. 5 lines 39-55 and Col. 8 lines 27-66).

35. With respect to Claim 19, Argawal teaches all the limitations of Claim 18 and further teaches having further computer-executable instructions for performing the step of creating a connection object representing the opening of the port connection by the process (Col. 9 lines 1-25 and Col. 8 lines 3-26) and in response to the detection of the receipt of data at the port, copying the process identification into the trace log (Col. 5 lines 39-55 and Col. 8 lines 27-66).

36. Argawal does not explicitly disclose copying the process identification from the connection object into a transport control block associated with the port. Khanna teaches that it is well known in the art that a process identity related to an established connection can be copied into a transport control block (TCB) (Col. 5 lines 18-43).

37. It would have been obvious to one of ordinary skill in the art at the time the invention was made to take the computer-readable medium disclosed by Argawal and modify it as indicated by Kanna such that the computer-readable medium further comprises copying the process identification from the connection object into a transport control block associated with the port. Such a modification would allow a simple way to correlate events occurring at the TCP level in relation to stored context information (In Argawal: Col. 8 lines 27-58). One would be motivated to have this, as there is need for the correlation of events at certain transaction levels in providing an analysis of system performance (In Argawal: Col. 8 lines 54-67 and Col. 3 lines 3-9 and Col. 2 lines 46-50).

38. With respect to Claim 20, Argawal in view of Khanna teaches all the limitations of Claim 19 and further teaches having further computer-executable instructions for

performing the step of copying the process identification from the connection object into the transport control block so that the process identification is contiguous with the rest of the data in the transport control block (The combination of Argawal and Khanna in the rejection of Claim 19 would provide for such a limitation).

Response to Arguments

39. Applicant's arguments filed 11/03/05 have been fully considered but they are not persuasive.

40. Applicants argue on page 8 of the remarks "*However, Agarwal does not teach event tracing at the transport layer of a protocol stack. Rather, Argawal discloses the use of agent modules which attach on top of the TCP device to monitor traffic in and out of managed nodes...Agarwal does not disclose the independent claim 1, 10 and 12 element of monitoring at the transport level as disclosed by the present application.*"

a. Examiner's response - The examiner reminds the applicants that a protocol stack is essentially a high level model of how network data and its associated protocols should flow through a given node. As such, the language of "at the transport layer" is very broad as it does not necessarily define a specific implementation of hardware and/or software. At best, "at the transport layer" defines a close relationship to where the processing of transport protocols occurs. Agarwal describes the actual implementation of part of the transport layer processing in relation to the TCP/IP drivers and particularly the TCP device. The monitoring structure of Agarwal is directly coupled to this transport layer processing for the specific purpose of monitoring TCP data. TCP is a transport

layer protocol. As such, TCP data would be processed at the transport layer.

The examiner does not see how the direct coupling to a TCP driver device and the explicitly monitoring of TCP data could not be considered to be "at the transport layer". In other words, the examiner interprets the "use of agent modules which attach on top of the TCP device" to have the meaning of "at the transport layer of a protocol stack". In fact, the claim language used by Agarwal in claim 17 states, "wherein monitoring said application data includes accessing said communications stack at a transport layer" (emphasis added). Applicants' arguments are not persuasive.

41. Applicants argue on page 8 and page 10 - "*Agarwal does not describe "tracing data traffic on a network at the transport layer" or "identifying processes causing transport-layer requests to transmit".. Agarwal does not teach the claim element of "searching the [input/output packet or packet] to determine the identity of a process that created the [input/output packet or packet] and storing in a trace log an entry representing the [request or data]." Agarwal merely discloses the storage of stream information describing the type of connection"*

b. Examiner's response - The underlying purpose of Agarwal's invention is for monitoring and management of distributed applications, databases, networks and systems for multiple purposes including trouble shooting, trend analysis, resource planning, security auditing, etc. (Col. 3 lines 10-32). Monitoring agents are provided to provide such monitoring. Particularly, Col. 5 lines 30-34, states, "Moreover, a monitoring agent is associated with each component of the network to provide for enterprise wide monitoring, as all the processes, including those

that are distributed, on the clients and the servers can be monitored.” In order to monitor particular processes, the context data structure and lists are used as described in Col. 8 lines 19-53. Particularly, one form of identifying a particular process is through resolving an address identified in the TCP data to see if it is on the list to be monitored (Col. 3 lines 40-53). If it is to be monitored, information related to the TCP data is monitored, stored and used for purposes as described. The examiner considers this to be within the scope of the claim limitations. Applicants’ arguments are not persuasive.

42. Applicants argue on page 11 - *“Combining Agarwal and Khanna not teach or suggest all of the claim limitations of claim 7. First, while claim 7 describes creating a connection object representing the opening of the port connection by the process, Agarwal describes autonomous module agents which are “autopush[ed] on top of the TCP STREAMS stack so that all TCP traffic in and out of the managed node passes through the module.” Col. 8, lines 11-14. Furthermore, other embodiments of Agarwal’s agent structures autonomously “monitor all TCP traffic in and out of the managed node” through the “TAP driver” and are not created as a representation of the opening of the port connection by the process as described in claim 7. Col. 9, lines 16-17. Accordingly, the “creating a connection object representing the opening of the port connection by the process” element is not taught or suggested.”*

c. Examiner’s response - Agarwal teaches that each connected stream, including those to be monitored, creates a context data structure for storing information related to that connection (Col. 8 lines 27-53). The claim language does not describe any specific limitations related to what information the connection object contains. As such, the examiner considers the context data

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structure to be within the scope of the claim limitations. Applicants' arguments are not persuasive.

43. Applicants argue on pages 11-12 - *"Likewise, the creation of a connection object which uses the well-known Transport Control Block (TCB) to create a log of network activity as claimed in claim 7 is not present in Agarwal or Khanna. In Khanna, the well-known TCB structure is described as merely keeping track of network connections. As claimed in claim 7, the created connection object first records each process identification into the TCB, then, once the connection object detects data at the port, the claimed object further copies the process identification into a trace log which is separate from the well-known TCB."*

44. Examiner's response - The rejection of claim 7 does not state that argued limitation is expressly claimed in either Agarwal or Khanna. The rejection of claim 7 instead suggests that the argued limitation is suggested and is obvious based on the combined teachings of Agarwal and Khanna. In re Keller, Terry, and Davies, 208 USPQ 871 (CCPA 1981) states, "Test of obviousness is not whether features of secondary reference may be bodily incorporated into primary reference's structure, nor whether claimed invention is expressly suggested in any one or all of references; rather, test is what combined teachings of references would have suggested to those of ordinary skill in art." Additionally, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

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45. Applicants argue on pages 12-13 - *"Furthermore, independent claims 6 and 18 teach tracing each individual packet across the TCP stack rather than merely the existence of network connections as recorded in the TCB and described by Khanna...The TCB structure described in Khanna, which is well-known in the art, does not trace each packet as it crosses the TCP stack...The combination of Agarwal and Khanna does not teach or suggest all of the limitations found in independent claims 6 and 18."*

- d. Examiner's response - Khanna is not relied upon for the rejection of Claims 6 and 18. Claims 6 and 18 are rejected under 102(e) as being anticipated by Agarwal.

Conclusion

46. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Lazaro whose telephone number is 571-272-3986. The examiner can normally be reached on 8:30-5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Saleh Najjar can be reached on 571-272-4006. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



David Lazaro
January 24, 2006



SALEH NAJJAR
SUPERVISORY PATENT EXAMINER